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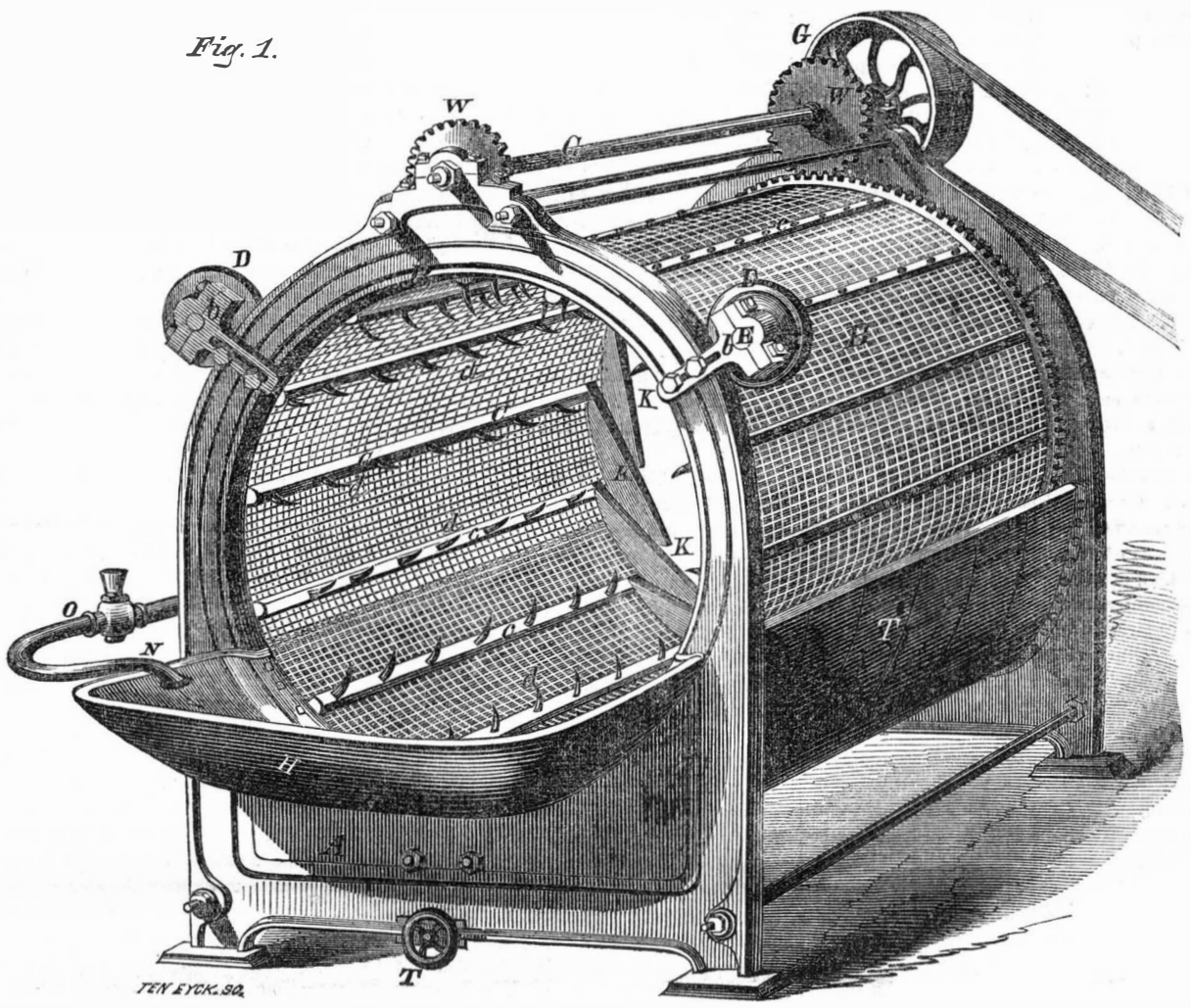
MACHINE FOR WASHING PAPER STOCK.

Fig. 1.



Washing Paper Stock.

The accompanying figure is a perspective view of an improved machine for washing paper stock, for which a patent was granted to Horace W. Peaslee, on the 20th of last September, and for which patents have also been secured in France, England, &c.

A is the framing of the machine. T is a trough supported by the frame in which a portion of the washing cylinder rotates through the water. B is the washing cylinder; it is made of woven wire work, secured to strong metal rings, one at each end, which are furnished outside with ways that fit grooves in the rollers, D D, running on shafts, E, in suspended bearings, *b b*, fastened to the standards of the frame. These rollers, D, form the bearings in which the cylinder, B, is capable of rotating. A portion of each end ring passes through a circular opening in one of the standards, in which it fits very loosely, so as not to produce friction. The object of these portions of the ring is to bring the open ends of the cylinder flush with, or beyond the outer ends of the standards, and to keep the ends of the troughs almost tightly closed, so that very little, if any, water escapes outside or around the cylinder.

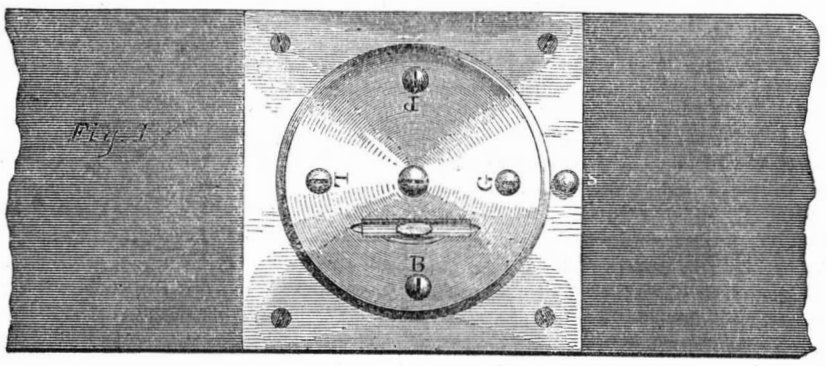
Each ring is furnished with spur teeth all round, to gear with the two spur wheels, W W, of the driving shaft, G. The cylinder is strengthened by wooden ribs, *c c*, which hold the hooks or bent steel teeth, *d d*.—These catch and carry up the rags, or other paper stock, and drop them repeatedly as the cylinder revolves. These hooks are arranged in a spiral line, winding several times round the cylinder, its direction being such as to cause the stock to be carried from the shute end, H, where it is fed in. This shute extends a short distance into the cylinder. At the opposite end of the interior of the cylinder are oblique curb pieces, K K, arranged at equal distances apart. They extend from the inner edge of the end ring a short distance into the cylinder, and are bolted to it. They are of such depth as to prevent the too free escape of water through the end of the cylinder. The spaces between these curb pieces form the channels, and the direction of the obliquity of these pieces is such, that the washed stock which has arrived at the end of the cylinder, rolls down the channels on the ascending side of the cylinder, and is discharged.

The cylinder is kept plentifully supplied with water by pipe, O. It is thrown on the stock by nozzle, N, as it enters the shute, H.

The pipe, O, runs along the outside of the cylinder, and is perforated with small holes to throw a number of strong jets into the cylinder on the stock along its whole length. The trough, T, is kept nearly filled with water. The stock is fed continually into the shute, H, in such quantities as to keep the cylinder about one-third full. As soon as the stock enters the cylinder it is caught by the hooks and carried up to meet the jets of water, which enter the ascending side of the cylinder, after which, by its continued ascent, it is dripped until it reaches the top of the cylinder, when it drops down into the water to be caught again by another hook, and submitted to the same operation a number of times before it reaches the end of the cylinder. This washing operation may be repeated a number of times in the same machine, or different machines may work after one another. The flooding of the cylinder with water is regulated by a sluice at the discharge end. The hooks, *d d*, may be set in straight lines, but in that case, the cylinder would require to be set in an inclined position. The object of placing the hooks spirally, is to avoid hanging the cylinder on an incline, so as to maintain the same depth of water throughout in its lower part, when revolving in the trough. The oblique curbs, K, are arranged in continuous and close succession around the discharge end of the cylinder, and the passages between them form channels (no spouts are required as in other washing machines,) which discharge the stock towards the center of the trough.—These curbs in no way interfere with the regular discharge of the stock; they tend to produce a regular and uniform washing of stock, and an evenly slow escape of the water. They perform important offices. Were it not for these, the stock would be passed too rapidly through the cylinder, as the hooks, *d d*, could not act so freely and perfectly. One of these machines will be exhibited in Paris at the Industrial Exhibition.

More information may be obtained by letter addressed to the Backus & Peaslee, assignees, No. 289 Pearl street, this city.

REVOLVING SPIRIT LEVEL.

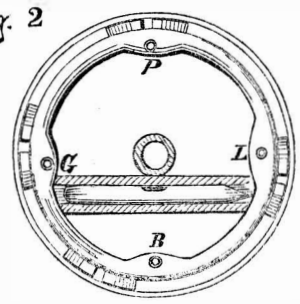


The annexed figures represent an improvement in spirit levels, for which a patent was granted to H. W. Evans, of Philadelphia, on the 13th of Feb. last.

Fig. 1 is a top view of the instrument, and figure 2 is an under view of the revolving disk. The nature of the improvement consists in constructing a revolving spirit level so that it can be used for leveling, plumbing, grading, and battering; and by graduating the revolving plate it makes a convenient and compact slope-level. In fig. 1, the central disk revolves on the central pin, which is its axis. On the under side of this disk the tube with the spirit bubble is secured.—The box containing the seat for the revolving disk is made of brass and let into the wood, and secured by screws. A spring, of which the pin, S, is the head, projects into the box, and catches into stops shown in fig. 2, at the back of the several letters.

OPERATION—The letters on the plate, fig. 1, stand for the objects the instrument is devised to accomplish. By pressing on spring head, S, and turning the disk until L is catched by the spring, the instrument will be set for a level; by bringing round P to the head of the spring, S, the instrument will be set with the bubble transverse to its length, and will answer for a plumb rule. When G and B are turned next to S, it can be set to any required grade or batter, because the spirit tube can be turned to any angle, and set there. By pressing on the spring, S, the disk or plate is left free to revolve on its axis, and can be set to L, P, G, or B, as may be required, alternately.

Fig. 2



Every person acquainted with the use of a level, will at once perceive the advantage of this one. The claim of the patent will be found on page 190, this Vol. SCIENTIFIC AMERICAN.

More information may be obtained by letter addressed to Mr. Evans, at No. 529, North 15th street, Philadelphia.

Muntz Metal.

We have been informed that the government has ordered commissioners to investigate the materials employed for the sheathing of ships and bolts, such as Muntz metal.

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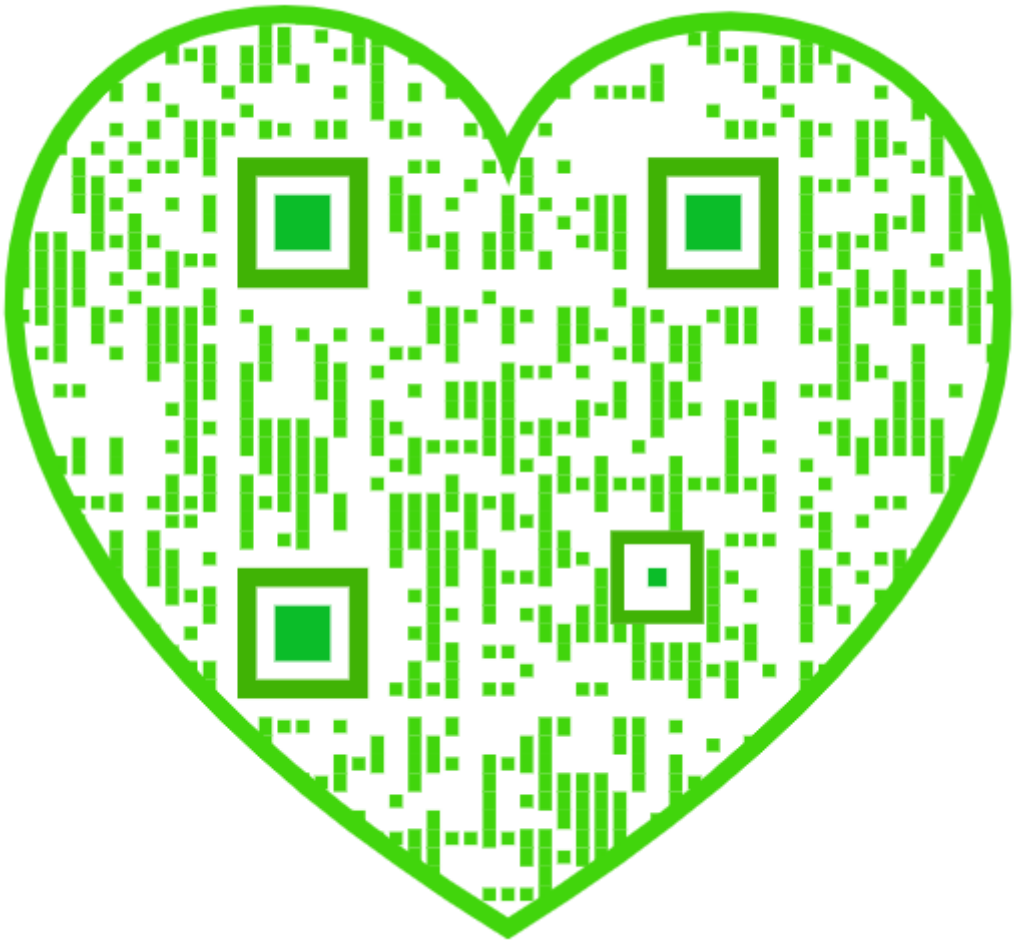

The Art of Dyeing.—No. 19.

GREEN ON WOOL—In a number of works on dyeing, different receipts are given for producing the same color on different kinds of goods made of the same material, such as woolen yarn, merino, camlet, &c. This is wrong, for the same drugs will dye the very same colors and shades of all fabrics made of the same material. The stuffs that will dye green on wool, will also produce the very same color on the finest broadcloth or bombazine.

OLIVE GREEN—A very beautiful olive green may be dyed at one dip with logwood, fustic, and blue vitriol (sulphate of copper). For ten pounds of goods, take three pounds of logwood, seven of fustic, and half a pound of blue vitriol. These are all brought to the boil together in the dye kettle, and the goods entered, handled well, and boiled for an hour, when they may be taken out, washed, and dried. Chips of logwood and fustic may be used in the dyeing of pieces, but not for yarn or wool. The quantity of stuffs given will make a medium green. More of these will make a dark green, and less a fine apple green. This color does not stand exposure to the sun.

By boiling the goods in the above-named dye stuffs, only adding one pound of camwood, a dark and invisible olive green is the result. Indeed, a true olive green cannot be colored without using a little camwood. By using these very same stuffs in very minute quantities, drabs of various shades can be dyed. Any person may color this kind of olive green in a cast iron kettle. We therefore recommend it to the attention of our farmers for domestic wearing cloth, by substituting half copperas and half alum for the blue vitriol, and always adding some camwood. This makes a very permanent olive green.

SULPHATE OF INDIGO GREEN—Sulphate of indigo and fustic make the clearest greens on wool. All fancy green colors for carpets, and such like work, are dyed with these stuffs. Fustic liquor is put into a copper kettle, and one ounce of alum to the ten pounds of goods added. Sulphate of indigo is then added, in such a quantity that when stirred the color of the liquor will be of the shade you want on the goods. When the liquor is brought to boil, the goods are entered and boiled for half an hour, when they are taken out, washed, and dried. If it is desired to make the goods darker in the shade, more stuffs are added. As these colors are somewhat expensive, some camwood is added to the liquor for dark shades; indeed, very good invisible greens can be dyed in this manner by the addition of camwood. The goods must be carefully handled in dyeing these colors. From the very lightest pea green up to the darkest grass green, in fancy dyeing, all the shades are dyed with the same stuffs, but in varying quantities. The sulphate of indigo should be at least nine days old before it is used for woolen dyeing. It should also be made of the best Bengal indigo. As good indigo as that made in the East Indies has been, and can be made again, in South Carolina, but the manufacture of it is very unhealthy.

FAST GREEN—This color is now only dyed on broadcloth. It is produced by dyeing the goods a blue in an ash or woad vat for a base, then washing them well, and dyeing yellow on the top with a very strong decoction of fustic, and a little alum. It will take about a pound of fustic and an ounce of alum to the pound of goods; they should be boiled about three-fourths of an hour.

CHROME GREEN—Within a very few years the bichromate of potash (chrome of the dyer) has come into extensive use in woolen dyeing. It has been long used in cotton dyeing for a few colors, but it is now a very general mordant for colors on woolen goods.

Boil the goods for one hour in two ounces of chrome and one of crude tartar, to every pound of goods. Then lift them, allow them to drip for ten minutes, and enter in a clean kettle of logwood and fustic—4 pounds of logwood and ten of fustic to every ten pounds of goods. In this bath they are boiled for one hour, when they are taken out, washed, and dried. This color is more permanent than the olive green dyed with the sulphate of copper, but it is also more troublesome to dye.

Flannels should never be dyed green with the sulphate of indigo, for however beautiful the blue produced by it, warm water and sweat will discharge it. Green cloth, unless very dark, does not look well for men's wear. Soldiers in light green uniform do not look well; but dark green with red facings makes a very showy uniform. For female dress no color is more appropriate than green; light green for young females, the depths of shade corresponding with the age. Red is the complementary color of green, and some purple trimming on some part of a person's dress is necessary to relieve the green in a frock; green trimmed with purple looks well in the dresses of children.

Florida Indigo.

Indigo was formerly cultivated in Florida, for which the climate and soil is well adapted. It grows wild upon the barrens in almost every portion of the Peninsula. When cultivated by the English in this country, the indigo of Florida was considered in the London market superior to all others, except that of Caraccas. The manner of cultivating and manufacturing advantageously is as follows:

The seed, which is very small, is soaked for some twelve hours, then mixed with ashes or sand, and sown in drill rows, about eighteen inches apart. The time for sowing in Florida is from the middle of March to the first of April. When the young plant makes it appearance, it resembles white clover, and must be carefully weeded, and the earth kept loosed about its roots. Three weedings are sufficient to carry it up to the first cutting, which commences when the plant begins to bloom, say about the first of July. The plant is so easily injured by the sun after it is plucked, that the cuttings should be in the afternoon. As fast as it is cut, which is done by a sickle, it is carried to a vat called the steeper. This vat is made of plank, is water-tight, and varies in size according to the extent of the operations of the planter. The steeper is filled with cuttings immersed in water. Planks, with weights upon them, are then placed on top to keep the cuttings beneath the water. In this state the steeping is continued for about ten hours, or less, according to the temperature of the water. When the water assumes an olive color, it is drawn into the "beater," another vat, placed alongside and beneath the steeper, and connected by a tube, and fastened with a valve or spigot. The liquid is now churned by hand or with machinery, until it becomes lighter in color, and a blue pecula begins to make its appearance. From time to time lime water is thrown into the beater during the "churning." After the pecula spoken of distinctly appears, the water is suffered to remain about four hours for the indigo to settle. It is then drawn off, the sediment placed in bags, and hung up to drain. When drained sufficiently, it is placed in boxes to dry, under gentle pressure; and when dried firm, it is cut up into square cakes and placed in the shade, to become completely dried by evaporation. The shorter the steeping and the less the beating, the lighter will be the color of the indigo. The indigo plant will yield two or three cuttings a season, and one hand will cultivate about three acres, the result being from 175 to 200 lbs. of the article. Unlike sugar cane or corn, the indigo requires no expensive machinery. Where it is made only for domestic use, barrels are used for steeping and beating.—[Florida News.

Curious Occurrence.

We see it stated in a number of our cotemporaries, that on the 14th ult. the artesian well in Selma, Ala., which had reached a depth of 440 feet, and was delivering near 500 gallons per minute, suddenly sank some 15 or 20 feet below the surface. The most extraordianry consequence of this phenomenon is, that all the wells in the vicinity have become dry.

An American New Manufacture in England.

We learn by the London *Mining Journal* that Dr. William H. Smith, of Philadelphia, recently read a paper before the Royal Society of Arts on the utilization of the slags of smelting furnaces, by manufacturing it in England, as has been done for a number of years in this country, into articles of merchandise, such as the beautiful ferruginous stone ware so common among us. The iron manufacturers of England seem to be delighted with the prospect of converting the slag of their furnaces into something useful, and they speak in terms of the highest praise respecting the invention. The London *Mining Journal* says, "if our transatlantic brethren owe to the parent country many arts and inventions which they have adopted, and in some instances improved, we must at least in this achievement of art acknowledge them to be our predecessors; for this branch of manufacture now for the first time introduced in detail to the commercial community in the British Isles, has been some years succesfully employed in the United States of America."

The introduction of this American manufacture into England will be the means of adding greatly to the wealth of that country, for it is simply converting materials which have heretofore been considered a waste and an encumbrance, into articles of use and ornament. In the manufacture of one tun of iron, there is produced about two tuns of slag, which heretofore has been cast upon the highways, and in general considered a nuisance around furnaces. When we take into consideration that three millions of tuns of iron are manufactured annually in Britain, producing six million tuns of slag, we can at once see what advantages must accrue to the British iron makers from the introduction of this new manufacture, which has already been commenced at the Dowlais Iron Works. No wonder they are somewhat excited by its introduction. At the meeting of the Society of Arts referred to, Dr. Smith exhibited a number of beautiful specimens made from the slag of American, French, and English furnaces, which were examined by the auditory, and excited general admiration. We feel somewhat proud of our American inventors, who, within the past few years, have introduced so many new and useful inventions, from Colt's pistols to unpickable locks; reaping and sewing machines; and even this new stone ware. If we have not already, we intend to pay back with compound interest in useful American inventions, Mother England, for all we have received from her in mechanism and the useful arts.

The Palace of Industry in Paris.

The immense scaffolding raised for the ornamentation of the principal facade of the Palace of Industry is about to be taken down. That facade is composed of three foreparts, viz: two at the extremities in the form of pavilions, and one in the center forming the chief entrance. Although this entrance is scarcely unmasked, a pretty good judgment may be formed of the fine ordonance of this truly monumental entrance. On a high sub-basement adorned with green marble slabs from the Pyrenees, rest four columns of the pure Corinthian Order, and whose profiles are of great regularity.—Above there is an attic decorated with pilasters of a Composite Order, which are surmounted by the wreathed letter N. E. On a perpendicular line with that attic, two Geniuses are seen leaning on the Imperial arms.

In the semi-centers of the entrance door two Fames in high-relief are seen sounding trumpets. A piedouche with the arms of the City of Paris supports a black marble slab bearing the inscription of the destination of the monument. On a level with the attic, on the frieze, is a great basso-relievo representing Agriculture, the Arts, and Industry. In the center of that basso-relievo, there is a bust placed on a pedestal with the words in golden letters—Napoleon III., Empereur. Finally a colossal statue representing France crowned with a glory and distributing crowns to the laureates, commands the whole.

As for the lateral facades they are only divided by the four corner pavillion, but the same frieze passes on the circumference of the monument separating the ground floor from the first story. On that frieze are to be read the names of the most illustrious men of all time and of all nations belonging to the Arts, Sciences, to Industry, Commerce, and Agriculture. The decoration of the upper story is composed of the inscription of the principal towns of France inserted in the intercolumnation of the windows.—[English and American Intelligencer, Paris.

Sheep Shearing.

By a reference to the patent claim page, in this number of the paper, it will be seen that a patent has been granted to Palmer Lancaster, of Burr Oak, Mich., for nothing less than the shearing of sheep by machinery, instead of a pair of sheep-shears—the common way. The machine, which is small and neat, is hung by a strap to the arm of the operator, and placed on the body of the sheep to be shorn. By simply turning a handle back and forth, and moving the machine over the body of the sheep, the wool is made to fly in double-quick time. It is well known that the most skillful hands at sheep-shearing do not cut the fleece even; and besides, the skin of the animal is invariably clipped out by the shears in many spots. This instrument cuts the fleece rapidly and evenly, never cutting any part of the wool twice; and it avoids cutting the skin of the animal; it is therefore a humane as well as a new contrivance.

New Fountain Pen.

Last week a patent was granted H. K. McClelland, of Eldersville, Pa., for an improvement in fountain pens, the nature of which consists in providing the tube handle with a small india rubber bag for containing the ink. In the tubes there is a valve, which is operated by a spring key like that of a musical instrument, and there is a small piece of sponge at the neck of the tube, which gives out the ink to the pen. When writing, by pressing with the finger upon the key, the ink flows out to the sponge when wanted, and keeps up a supply to the pen, thus obviating the trouble of dip, dip, dipping into an ink bottle.

Van Horn's Slide Rest.

The improvement in slide rests for which a patent was granted to Chester Van Horn, of Springfield, Mass., last week, is of an entirely different character from that of Mr. Noyes'.

It consists in forming the tool block of two parts, and connecting them together by a dovetail, so that the upper part may slide upon the lower, the faces of the two parts that are in contact and connected, being in an oblique position, which, as it (the upper part) is moved backward and forward, causes the tool to be elevated or depressed.

The Springfield Tool Co., Springfield, Mass., have now ready for sale a few ten feet engine lathes, with cross feed, and this beautiful improvement attached. All the mechanics who have witnessed its operations consider it to be a most valuable invention, and that it will win its way into general favor.

Great Mowing Machine Case.

In the U. S. Circuit Court, held at Buffalo, N. Y., on the 30th March, in suit, for an infringement of Ketchum's patent on Mowing Machines, instituted by Howard against Forbush; an injunction was granted against the latter, establishing the validity of Ketchum's re-issued patent of 1853.

India Rubber Again.

At New Haven, Conn., on the 26th ult., before Judge Ingersol, U. S. District Court, a non-suit was entered for the Hayward India Rubber Co., defendants, in the case of Horace H. Day, who sued them for infringement of the Chaffee patent. The suit was withdrawn by plaintiff's counsel, and costs given for defendants. This material can stand a few more pulls yet,

We understand that the U. S. Court in Rhode Island has not finished the subject yet, although H. M. Day has gained one suit.

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The Water of Ohio.

MESSRS. EDITORS—Will you do me the personal kindness to state what form of filter or other agent, mechanical or chemical, is, in your estimation, best adapted either to make the well water of this section of Ohio (which is intensely impregnated with lime,) or the rain water (which is unavoidably impregnated with the smoke and sooty residuum of bituminous coal, which is extensively burnt here) fit for drinking purposes. If my family drink the lime water, their alimentary canal is affected throughout, and digestion consequently greatly impaired.—The running water, whether we drink of it or lave in it, is nearly certain to affect the spleen, and produce chills and fever. What shall we do? Can we filter the tinted rain water and make it palatable, by charcoal, quartz, or other process, or will it be more easily done by decomposing the lime in the wells, or shall we be driven to the ultimatum of distillation? Your world-wide repute for omniscience is sufficient guarantee that you can fully answer my queries, and your equally well-known disposition to dispense your treasured intelligence, will constrain you to reply, which I shall expect to read in your next issue. HENRY S. BABBITT.

Newark Machine Shop, Newark, Ohio.

[The passing of the well water through charcoal and sand in a common filter will not remove the lime and soften the water. It is, however, a very good plan for purifying the rain water. The rain water should be conducted to fall upon a cotton cloth—such as Canton flannel—which can be taken out and washed from time to time. Unless this is done, the charcoal will have to be renewed oftener.

Hard lime water can be softened with quick lime. The common hard lime water in some wells and streams, contains carbonate and sulphate of lime. These make the water hard, and can be precipitated by quick or fresh slacked lime, which is a hydrated oxyd. Half an ounce of quicklime stirred in a pan containing nine quarts of water, then thrown into a twenty gallon cask of clear hard lime water, will soften it, by taking up the excess of carbonate and falling to the bottom in the form of chalk and gypsum. This way of treating the hard lime water of Ohio will render it more fit for washing, and for feeding steam boilers, but we are not sure whether or not it will be rendered any more palatable or healthy. A little sal soda will also precipitate the carbonate of lime and soften the water.

There are many substances which we know that could be employed to precipitate all the lime in well water, but then it would be too expensive to use them, and besides, they cannot be used with safety either. The only rational economical system which we can think of for purifying the well water of Newark, Ohio, is by filtration, as follows:—Make a long channel or way of cobble stones sand and clay, and conduct the water through it in its passage to a filtering cistern, where it should be made to percolate through fine charcoal and clean sand, and pass from the bottom through an opening into an adjoining open chamber for use.—The form of the filtering chamber is of no consequence, it may be square or round; but the longer the conducting channel is, so that the water receives the greatest amount of agitation among the stones sand and clay, so much the better. The channel should be set upon an incline, and the cobble stones, clay, and sand renewed from time to time.

Foul Linen, Buttons, and Coat Tails.

An exchange paper indulges in the following moral and instructive calculations:

"It has been calculated that the cost of washing linen that might just as well be worn two days longer, amounts to enough in this country to more than defray the expenses of the American Board of Foreign Missions! The expense of buttons worn on the back of our coats, where they are of no earthly use, is equal to the support of all our orphan asylums! The value of tails to dress coats (of no value in reality for warmth or convenience) is actually greater than the cost of our excellent system of common schools!"

Statistics of Patents Issued in 1853.

Tabular statements of Patents issued during the year 1853—with the total number of each class; the number of each class to each State; the total number of the classes to each State, &c. Prepared for the SCIENTIFIC AMERICAN by T. G. S., of Jersey City, N. J.:

CLASSES.	I. Agriculture,	II. Metallurgy and manufactures of metals and instruments thereof,	III. Manufactures of fibrous and textile substances and machines therefor,	IV. Chemical processes, compounds, &c.,	V. Calorifers.—Lamps, Stoves, &c.,	VI. Steam and Gas Engines,	VII. Navigation and Maritime Instruments,	VIII. Mathematical, Philosophical, &c., Instruments,	IX. Civil Engineering and Architecture,	X. Land Conveyance,	XI. Hydraulics and Pneumatics,	XII. Mechanical Power, applied to pressing, weighing, &c.	XIII. Grinding Mills, &c.,	XIV. Lumber and Machines for Preparing,	XV. Stone and Clay Manufactures,	XVI. Leather and Machines therefor,	XVII. Household furniture, &c.,	XVIII. Fine Arts,	XIX. Fire Arms, &c.,	XX. Surgical and Medical Instruments,	XXI. Wearing Apparel, &c.,	XXII. Miscellaneous	Totals
Maine,	4	1	2	0	0	0	2	1	2	1	0	0	0	1	0	1	0	4	1	0	1	0	21
New Hamp.	3	2	0	0	1	0	0	0	1	0	0	1	0	2	0	1	3	0	0	0	0	0	14
Vermont,	4	1	1	0	2	0	0	0	2	2	0	9	0	2	0	0	1	0	0	1	0	1	17
Mass.,	4	12	27	6	9	4	6	6	1	4	5	0	1	14	2	6	6	12	5	2	1	2	135
R. I.,	1	1	4	1	0	0	4	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	14
Connecticut,	1	8	5	4	0	0	0	1	1	4	0	0	0	5	0	0	4	2	2	2	2	0	41
New York,	28	31	9	12	16	13	16	6	8	9	10	6	6	14	6	11	10	21	2	4	4	8	250
New Jersey,	3	5	1	3	2	0	1	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	19
Penn.,	15	16	3	5	9	15	3	2	6	1	3	0	1	6	2	4	8	9	0	1	3	3	115
Delaware,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Maryland,	4	1	1	1	0	1	0	0	0	0	1	0	0	2	0	0	0	0	1	0	0	2	14
Virginia,	10	2	1	0	2	0	0	1	1	0	1	0	1	2	0	0	1	0	0	0	0	0	22
N. Carolina,	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	4
S. Carolina,	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
Georgia,	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
Alabama,	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Mississippi,	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Louisiana,	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	5
Arkansas,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Kentucky,	1	1	3	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	8
Tennessee,	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
Ohio,	14	2	1	4	3	4	1	0	1	0	1	4	2	5	0	2	11	3	1	1	0	3	63
Indiana,	6	1	1	0	0	0	0	0	1	2	0	0	2	2	0	0	1	0	0	0	0	0	16
Illinois,	9	0	0	1	0	1	0	1	0	0	1	0	2	4	0	1	0	1	0	1	0	0	22
Michigan,	3	1	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	9
Wisconsin,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Iowa,	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Missouri,	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
California,	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Texas,	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dis. of Col.,	1	1	0	0	0	2	1	0	1	1	1	0	0	0	1	0	0	0	0	1	0	0	10
Foreign,	0	4	3	9	1	1	3	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	25
Totals,	118	93	64	46	48	44	37	19	30	27	25	12	15	65	12	26	46	56	16	15	12	19	845
Extensions,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
Additional Improvements,	-						-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Re-issues,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
Designs,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
Grand Total,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	959

REMARKS—New York received the highest number of patents, and more than one quarter of the whole, 250; Massachusetts, the next highest, 135; Pennsylvania, 115—these three States receiving more than one half of the whole number issued. Alabama, Wisconsin, California, Texas, received each, 1. Delaware and Arkansas received none. Foreign Patents issued, 25.

New York was the only State that received patents in each class, and in classes 1 and 2, is ahead of all the others. Massachusetts received most in class 3; Pennsylvania, in class 5.

In classes 1, 2, 3, 14, 18, more than fifty each were issued. In classes 4, 5, 6, 7, 9, 10, 11, 16, 17, twenty-five, and under fifty were issued.

This table will well repay a further investigation, both by the curious, and those seeking information on the resources, genius, &c., of the country.

[All our inventors must feel deeply obliged to our correspondent for the labor he has bestowed on the above table. The information is very useful, and the work is ably accomplished. We hope he will perform the same good office for the Report of 1854. We do not know any person who can do it better.—[Ed.

India Rubber Combs.

In consequence of the numerous applications of iron to the arts in our period, the present is frequently termed the "Iron Age." It is sometimes, too, very properly called the "Age of Steam," and at others the "Age of Electricity." With equal propriety it may be termed the "India rubber Age" The application of this substance to the arts and manufactures are so numerous that we cannot think of giving a list of them here; nevertheless, we will mention a few facts relative to this material. When we were at school india rubber was looked upon only as "a curious specimen of a vegetable gum, which had the singular quality of removing pencil marks from paper." Now this is some thirty summers past; and during that short period india rubber has been employed for shoes, coats, hats, carriage wheels, pipes, joints, &c., in endless variety. Every day we find out some new application for some useful purpose. This is not to be wondered at when its extraordinary qualities are considered. It is now, we perceive, made into combs, superseding expensive tortoise-shell and the brittle horn. When india rubber is mixed and kneaded with a portion of sulphur, and passes through heated rollers to thoroughly incorporate the sulphur, it is then called "vulcanized." Now if the vulcanized rubber be exposed for a few hours in a vessel to the action of high-pressure steam, say of 300° centigrade heat, it acquires new properties. From being soft it becomes hard, though very difficult to break. In this state its texture very much resembles tortoise-shell, and can be beautifully polished. Comb-makers cut and work it like shell. It can be carved, and designs of any form can be made; and, from its strength, it is well suited for delicate work in instances where other materials would be liable to fracture. Thus the milky juice of a tree (*Siphonia* and *Ficus Elasticus*) is made by the art of man into a walking cane, a picture frame, a top coat, a slipper, or a comb. SEPTIMUS PIESSE.

London.

Singular Statistics of Coffins.

MESSRS. EDITORS.—I have worked journey-work at coffin making at various times during the past four years for James B. Richards, we make them at a certain rate per foot, measuring the length of the bottom. It has always struck me as being something very singular that a great many coffins are required of certain sizes, while but few are required of other sizes. On my mentioning this to my employer he let me have his sale book, from which I find the sizes to run on an average per month as follows:—

Ft.	In.	Coffins.	Ft.	In.	Coffins.
— 20 (still born)		20	4	8	1
2		20	4	10	1
2	4	20	5		1
2	6	19	5	2	2
2	8	20	5	4	4
2	10	20	5	6	9
3		18	5	8	10
3	6	9	5	10	12
3	8	8	6		12
3	10	7	6	2	4
4		3	6	4	4
4	6	1	6	6	3

The last three are almost always required for the months of December and January; this table of mortality seems to me to run very singularly on sizes, and I suppose it to be worthy of publication in order to provoke inquiry on the subject—some good may result from investigating the thing.

N. B.—I may mention that along Rock River, in Ogle Co., Ill., there are many beds of good sand proper for making the finest kind of glass. If any of the New York manufacturers wish to inspect the sand, I will send them a sample if they will address a note to JARVIS ROYAL.

Oregon City, Ill., April 2, 1855.

To Sportsmen.

Wash your gun barrels in spirits of turpentine by dipping a rag or sponge fastened on your gun rod into the liquid, and swabbing them out three or four times, when they will be cleared from all impurities, and can be used almost instantly as the turpentine will evaporate and leave the barrels dry; even if they are a little moist it will not prevent their going off like water. After being washed thus, there is no danger of rust as when water is used. I am an old experienced gunner, and have practiced this for years, and found it useful. Spirits of turpentine can be procured at all country stores, and a small quantity sufficeth.

Fire Island. F. D.

Chloroforming Weevils.

One of the editors of the *Washington Union* was present at the Patent Office a few days since, while experiments were made to destroy weevil in wheat by the use of chloroform. In two or three minutes, after a few drops of chloroform had been administered, the insects naturally enough began to exhibit unmistakable symptoms of uneasiness, which proved to be the certain precursors of a quiet, respectable death. It was the opinion of the experimenter that these destructive insects might be effectually exterminated through the agency of chloroform, and large quantities of fine wheat saved every year.

Mail Boxes.

The mails on the Cunard steamers are now carried in pine-wood boxes instead of leather bags, as formerly. Each box contains about 2500 letters, and weighs about 100 lbs. By means of an inner spring an engraved direction—Liverpool, Boston, New York—shows itself when necessary. The boxes are all numbered, and therefore their destination can easily be traced. The lid is fastened down by a screw, counter-sunk in a brass plate, over which is the Post Office seal, and this can only, therefore, be wilfully fractured.

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New Inventions.

Carriage Springs.

The patent granted this week to Thomas Murgatroyd, Jr., of Smithville, C. W., relates to a class which it has been supposed by many offered no room for anything new to be accomplished. In this however they have shown themselves to be mistaken ; there is scarcely a single machine, implement, or vehicle, that can be called perfect. There is plenty of room for improvement in every department of mechanism.

In this invention four springs are ememployed, two at the front and two at the back part of the vehicle, and these are so arranged with arms and levers that the load in the body of the carriage or wagon to which they are applied, rests equally upon them, and the only strain to which the axles are subjected, is a lateral one. Large springs, the length of the axles can be used, so that great elasticity is combined with their use, and the body of the carriage is scarcely moved from its proper position, by the wheels getting into ruts, or on passing over obstacles.

Improvement in Chimney Safes.

The accompanying engravings represent an improvement in arranging the flues and stove pipes of the tunnel of the common brick chimney, for which a patent was granted to Geo. B. Clarke, of Leonardsville, Madison Co., N. Y., on the 20th of February last.

Figure 1 is a front transverse sectional elevation, and fig. 2 is a perspective view of the improvement. The invention consists in providing a peculiarly shaped iron box, similar to a stove casting, for the lower part of the brick tunnel and setting, or suspending it between the timbers on which the chimney is to be built.

The box being about the size of the inside of the tunnel in diameter, is enlarged at its upper part by a broad rim or flange, on which the brick work is set. The rim extends beyond the brick outward, on all sides, and is slightly raised, to receive the rain water, which often runs down outside of the chimney. Small apertures are left in the mortar for the water thus collected to run into the box.

In figure 1, A represents the smoke box, which is open at the top, or highest part, where it connects with the chimney, C, the rims or flanges, *b b*, supporting the bricks above, and resting on a fire proof setting of mason work between the timbers, thus extending the flue downward a suitable distance to permit the entrance of the stove pipes. The smoke box may be enlarged, as shown, where the tubes, D D, are attached to removable plates, so that the required space within is obtained for entering and securing the stove pipes. The tubes, D D, are cast with, and form a part of the removable plates not shown, which plates fit suitable apertures in the smoke box, and may be changed for tubes of such size as will fit any desired size of stove pipe. This arrangement of the tubes is essential, as the smoke box, when once set, cannot be removed without taking out a portion of the chimney. B indicates the depressed or conical shaped bottom of the smoke box. It is designed to prevent the injurious leakage of the ordinary chimney, as, in this arrangement, all the water caused by rain, the melting of snow or ice, with the ashes and soot within, will be collected, and remain without risk above the nozzle, E, through which all can be drawn out when necessary. It will readily be understood, that in addition to the arrangement shown for two stove pipes, two other pipes may be inserted in the rear or opposite side of the smoke box, without increasing the cost of the device, thus rendering one chimney sufficient for hot-houses or large shops. For churches, school rooms, and halls having stone chimneys above, the door of the smoke box, when open, affords a perfect ventilation, as the draft of the chimney will remove the impure air, the door being arranged for the purpose of ventilation, as also for cleaning the flues and stove pipes.

Above the flues of the pipes, D D, are shown the dampers, F F, which are hinged on rotating rods passing through the rear or front side of the smoke box. The draft of the chimney may be regulated by opening or closing either, so as to have the required heat of the stove in use, without any waste of fuel. Or by closing both dampers on the dotted line, in case of accidental and violent burning of soot in the chimney, the fire may be suppressed by thus closing the draft, after having quenched the fire in the stove. A simple form of dampers has before been used in the brick chimney; in the improved form they are here shown, no reasonable objection can be made to their use, as the door of the smoke box, opening above and below them, affords facilities for cleaning, repairing, or replacing them with new ones when required.

It may be proper to add, that in the new arrangement a smaller sized chimney than in ordinary cases can be used, the device being designed for frame rather than brick buildings, where the masonry has the joists instead of the substantial wall of the building for its support.

CLARKE'S CHIMNEY SAFE.

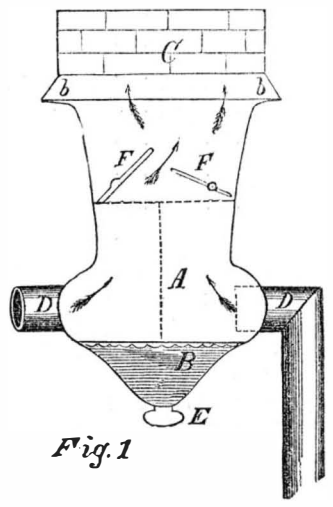
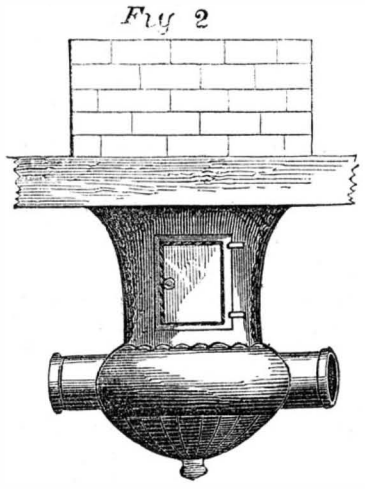


Fig. 1

Fig 2



More information may be obtained respecting this improvement, for which, we believe, there is no similar patent, on applying by letter to the patentee, whose name and residence are given at the commencement of this article.

HOMINY MILL.

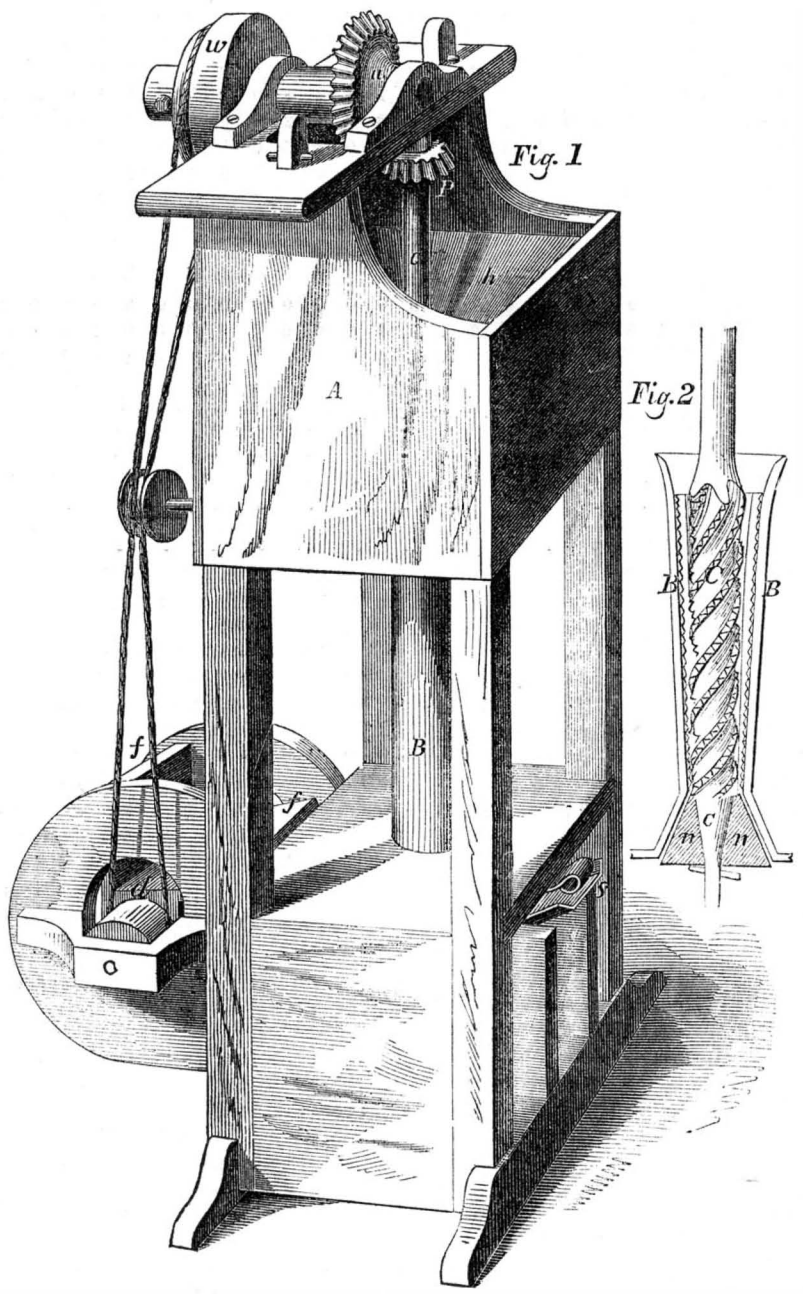


Fig. 1

Fig. 2

The annexed figures represent a hominy mill, for which a patent was granted to B. Bridendolph, of Clearspring, Md., on the 22nd of last August. Fig. 1 is a perspective view of the mill.

A is the hopper box, B is a metal cylinder with projections on its inner surface, C is the hulling shaft, working in cylinder B. It is of a compound spiral shape; it has a spiral face and spiral edges on its threads. This shaft revolves in the cylinder, B, by the bevel gearing, *u* P. The shaft of the bevel wheel, *u*, is rotated by hand by a crank lever, or it may be driven by any other power. *f* is a fan which is rotated by a band from pulley, *w*, passing around pulley, *d*, on the shaft of the fan. The corn is put into the inside *h*, of the hopper box, and the shaft, C, being rotated the corn passes gradually from the hopper down through the cylinder, B. The spiral threads of the shaft, C, beats the corn against the rough interior surface of the cylinder, carries it down, and at the same time packs it in a mass at the bottom, while the spiral edges (which run reverse to the spiral of the threads) act so as to strip the hulls from the grain, and break and take the eyes out of it.

The outlet of the hollow grinding cylinder is regulated by a small vent gate at the one side at the bottom, which allows it to escape just as fast as the mill hulls it. It then falls upon a sieve, *s*, fig. 1, and the hulls, eyes, and other impurities, are there separated from it by the blast from the fan, *f*, when it passes down and out in a clear state from a shute under the fan.

This mill can be made of any size, from a hand up to a horse power. A hand power mill, the patentee informs us, hulls one bushel per hour; a horse power from 50 to 80 bushels per day. Several thousands of them have already come into use.

It can be made on a large scale, so as to convert it into a corn and cob mill. Fig. 2 represents a vertical section of a cylinder and shaft, when used as such a mill It is made like fig. 1 in every respect excepting the addition of a conical nut, *n*, and corresponding seat at the lower end of the shaft. This nut is secured to the shaft, C, and a key passes through the shaft under it. The shell or concavity in which this nut works, is separate from that of B, the cylinder, and it can be taken off and attached to the framing, so as to renew these parts when they get dull, which can be done at a very small cost.—The nut, *n*, grinds the hominy into meal: it can be enlarged as a corn and cob mill to grind fifteen bushels per hour.

It will be observed that this hominy mill is exceedingly simple. Its action will be understood from the figure, without a single other word being added to explain it. The cost of a hominy mill, fig. 1, is $7.

More information may be obtained by letter addressed to the patentee, at Clearspring, Washington Co., Md.

Paper Ruling Machine.

The improved paper ruling machine of T. J. Baldwin, of Bridgeport, Conn , for which a patent was obtained, and the claims published in our last week's list, embraces a striking peculiarity. The improvement relates to the peculiar means employed for lifting the pens from the sheets of paper at proper intervals to make the required blanks or spaces on the sheets. This can be done to make spaces of different sizes, with great rapidity; also for making different spaces on the same sheets at any time, for fancy ruling for different purposes, so that it is flexible in its character, and differs from common machines in this respect.

Noyes' Slide Rest.

The patent granted last week to C. A. Noyes, of Pittsfield, Mass., for an improvement in slide rests, relates to the adjusting and guiding of the cutting tool. The edge of the cutter can be elevated and depressed with great facility, so as to bring it in a proper relative position or angle with the article to be turned, by simply turning a hand wheel, which elevates or depresses the edge of the tool, as may be desired.

Schenck's Slide Valve Gear.

The patent granted last week to John B. Schenck, of Ansonia, Conn., for improvements in operating slide valves, embraces very excellent features. The principal object of the invention is to effect the cutting off of the steam at any point in the stroke of the piston by means of a single slide valve, by such a movement as will leave a free exhaust till the end, or very near the end of the stroke, and connect the valve with a governor, so that it shall be variable in the most perfect degree under the control thereof, either to allow the full head of steam to act nearly during the whole of the stroke of the piston, or to cut off at the very earliest desirable point.

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Scientific American.

NEW YORK, MAY 5, 1855.

Breckenridge Coal.

We have received a sample of the Breckenridge (Ky.) cannel coal (shale,) with the injunction to examine it, and judge whether it is not equal, if not superior, to the Torbane Hill mineral of Scotland, to which we directed attention on page 64, this Vol. SCIENTIFIC AMERICAN, in the following words: "We invite the attention of our geologists to search for minerals of the same character and quality in our own country." This sample has been sent to us as being a like mineral, and such a discovery as the one to which we invited attention. We of course cannot personally testify as to the quality of the seam of this coal, whether it is uniform in quality, or is of great extent Of the sample we have received, however, we have no hesitation in asserting that it is a very superior cannel coal. It is asserted that it is equal if not superior to the Torbane Hill mineral, which is the richest hydro-carbon mineral in Europe. It must yield a great amount of gas.

The Torbane Hill mineral is believed by many to be a rich bituminous shale; that is the opinion entertained respecting it in Germany by the chemists there. It is transported from Scotland to Frankfort for making gas, and found to be cheaper than the old cannel coal. The Breckenridge cannel coal is blacker than the Torbane Hill mineral, which is of a brownish color, and somewhat softer.

We have before us two reports of this coal, one by John Clowes and F. Headley, and the other by Prof. Benj. Silliman, Jr., Geo. D. Prentice, and Bryan R. Young—acting as commissioners under oath. From the latter report, we learn that the bed of this cannel coal has been opened at fifteen places; that it underlies at least 4000 acres, and is about three feet thick. "In this thickness," the report states, "we do not include about eight or ten inches of a bituminous shale under the coal, whiche is full of impressions of coal plants, and burns freely." This shale in itself would scarcely be worth working, owing to the seam being so thin, but the cannel seam is of very good thickness. The analysis of it makes it inferior to the Torbane Hill mineral, which produces 75 per cent. of volatile matter, but yields no coke; the Breckenridge cannel 63·52 per cent. of volatile matter, but 27 of coke, which makes it very excellent for manufacturing gas. We do not know whether it has been tried by any of our gas works or not; if not, we really think they stand in their own light, in not experimenting with it.

Lunar Influences.

The last number of the *New York Quarterly* contains an article on the much-mooted point of lunar influence,—that is, the effect of the moon's rays upon objects on this earth. From the information presented, it appears some scientific men have come to the conclusion that the moon exercises no influence whatever on the weather, crops, or anything else on the earth, while others as positively affirm that it does. The opinions or popular belief of different nations—savage and civilized—with respect to the moon's influence, is something very remarkable. Almost every nation believes that the moon affects the weather, the crops, the cutting of timber, the decay of fish, and the health of man. In many places in England it is a common belief that persons never die of sickness when the tide is running in. In South America the natives pay strict attention to the lunations in sowing their crops. It is pretty well settled now, we believe, that fish and flesh decay more rapidly when exposed to the moon's rays than when covered. The Indians always cover their fish from such influences. In Brazil, the opinion prevails, that the moon's rays falling upon infants will produce sickness. In Siberia, the hunters are careful to secure their prey, containing musk bags, at full moon; they declare they are good for nothing at new moon. But the most astounding influence attributed to the moon, in our day, is that of causing earthquakes. M. Alexis Perry, of Paris, asserts that the moon is the cause of earthquakes, by its varying gravitation acting on the *interior fluid*. Thus it is assumed that the interior of the earth is now in a fluid state, and the consequent action of the moon's pressure on the outer thin crust sometimes breaks it, and at other times violently agitates the sea of lava within. Volcanoes, it is asserted, are also subject to this influence. We have but little confidence in the theory of the moon's producing waves in the interior of the earth. If this were a fact, all parts of the earth would be subject to earthquakes. Now it is well known that this is not the case, but that they are local—confined to certain districts, hence the reasonable conclusion is, that the cause is local also—perhaps it is magnetic.

What effect the moon has upon crops—the time when planted or cut down—we cannot tell, but many of our farmers firmly believe that the times of planting and sowing must be in accordance with the moon's phases. It is also a common belief that timber cut down at full moon is more subject to rot, and the attacks of worms, than that cut during the first and last quarters. There must be some foundation for such general and wide-spread opinions; but their truthfulness we have heard denied over and over again. The question is not yet settled; there is still room for closer observation and investigation.

Form of Propellers of Ships.

We find a long article in the *National Intelligencer*, of the 20th April, by Thomas Ewbank, Ex Commissioner of Patents, on the above named subject. It is addressed in the form of a letter to the Secretary of the Navy. When Mr. Ewbank was Commissioner of Patents, his first Report was illustrated with figures of different forms of propellers, showing those of the fastest and slowest kinds of birds and fishes; and the best form which he had discovered in making some experiments. His experiments, he states, developed the fact that the best form for propelling vessels, harmonizes with that which nature has provided for the swiftest of flying and swimming creatures. For the paddles of steamships, therefore, he recommends that the propelling blades, instead of being thick rectangular pieces of timber, as they now are, should be made of some strong thin material, like steel, and should be tapering so as to act with the same area of surface in the depth of the water, that they now have in acting near the surface. To adopt his suggestions for paddle wheels, these should be made narrower, and the blades of a half diamond shape, the points projecting and dipping deep in the water. Unless paddles are so constructed he believes it is in vain to look for any great increase of speed in steamships. We should really like to see his suggestions carried out.

Queries for the Patent Office.

Among the numerous employees of large governmental establishments there are generally to be found a proportion of black sheep—loafers—individuals who spend the time for which they are paid in neglect of their duties, whose hardest labor consists in calling at the Treasury Office once a month to receive an unearned salary. We are fearful that too large a number of such worthies are sucking pap in the U. S. Patent Office. Either such is the case, or else the copyists of that department are greviously overworked; we should ourselves be filled with grief if the latter were the fact. Will they be good enough to tell us why it takes from two to three weeks to engross a patent after it is ordered to issue, when, in most cases, the document could be copied in three hours? Will they think us too inquisitive if we respectfully inquire, why official letters of not more than a dozen lines, which a boy could copy in ten minutes, are not mailed sometimes for one and two weeks after the original was written? The number of copyists is not limited by law, and we, as well as the public, are anxious to know what is the real trouble.

Henry M. Paine again before the Public.

The Worcester (Mass.) *Palladium* states that H. M. Paine gave a free lecture in that city on the evening of the 19th ult., "to illustrate a developement made by him of electro-magnetism applied as a motive power." We do not know what the *Palladium* means by *this developement* of Mr. Paine's. Will the Editor of the *Palladium enlighten us?*

It also states that previous to the exhibition of his machine, Mr. Paine gave an interesting exposition of his personal history, "which occupied an hour and a half." Mr. Paine, we should think, could scarcely do justice to the subject in this *brief* space of time. The *Palladium* also states, "it was manifest from the recital, that Mr. Paine had suffered injustice from the hands of individuals and the public, because of the *peculiar* circumstances in which he was sometimes placed." It blames Mr. Paine for permitting his character to be handled as it had been, when "he had power to modify public opinion by the exposition he had given," in that lecture. It also states, that "he has too often found himself the victim of men who took advantage of his necessities to plunder him of the fruits of his genius."

We have not been able to learn of a single case wherein Mr. Paine has suffered injustice from the hands of the public; nor have we been able to learn the names of any party who has plundered him of the fruits of his genius. If there are any such parties or individuals, they should be pointed out. Mr. Paine is the only person we know who has done and said anything to injure his own character, and it looks as if he were accusing the public, and particular individuals, whose names are withheld, with the injustice which should rest upon his own shoulders. Who can enlighten us further in regard to this matter? Surely we cannot wait much longer for Mr. Paine to do it, as he has promised us for years, that shortly an exposé should be made through the columns of the SCIENTIFIC AMERICAN, prepared by himself. Now let some one else speak for him.

Illustrating Patent Office Reports.

The New York *Tribune* of the 26th ult., recommends that the Patent Office reports be illustrated by the publication of printed specifications of all the patents illustrated by steel plate engravings. It considers that this would be far cheaper for inventors than wood engravings. We would really like to see good illustrated reports of the Patent Office; but no person except one *profoundly ignorant* of the drawings which accompany patents, would ever have suggested the illustrating of them by steel engravings. It would require the Patent Office to have a revenue ten times larger than it now has, to illustrate all the patents correctly by steel plate engravings, and this would require a rise of patent fees from $30 to $300. If such a system were adopted, the great majority of American inventors would be completely disabled from securing patents. Our inventors and men of most ingenuity are not men of the longest purses, by any means. This would be an act of high injustice to them, and our country would feel the effect of such a measure. It would tend to discourage useful improvements, and thus retard the progress of invention and discovery.

Gallery of Inventors' Portraits.

We learn by the last number of the Glasgow *Practical Mechanics' Magazine*, that Bennet Woodcroft, Esq., has commenced a Portrait Gallery of Inventors, in the London Patent Office. He has already collected quite a number of portraits of distinguished inventors of all nations, among which figures old Roger Bacon, the reputed inventor of the air pump and the camera obscura. This Gallery will be a famous place of resort for American inventors, who may visit London—as all inventors "the world around," are brothers. Such a gallery should be connected with every National Patent Office. We would like to see one established in Washington, and we recommend this to the attention of the Commissioner of Patents; we have no doubt but the proposition, will meet with favor from him. A Gallery o fIn-ventors' Portraits should be set off in the New Wing of the Patent Office.

Reported Resignation of the Commissioner of Patents.

A correspondent of the New York *Tribune*, writing from Washington on the 25th ult., stated that Hon. Charles Mason had resigned his office of Commissioner of Patents. The same statement has since appeared in several other journals.

This announcement, we believe, is rather premature, for up to the time this week's issue went to press, Judge Mason had not resigned. He has several times, however, of late, indicated such an intention, owing to the pressure of extensive private business operations; but we still hope that he will not feel compelled to do so. His resignation would be received with profound regret by the public at large, by all inventors, and by all who have been in any way connected with the Patent Office during his administration. It is universally conceded that a more honest, able, energetic, and faithful officer than Mr. Mason never filled the important post of Chief Commissioner. He has but just succeeded in establishing the Office on a systematic and effective working basis—has just completed the renovations and reforms which the neglect and incompetence of predecessors for years previous had rendered imperative, and now he proposes to abandon his position, and allow the Department to run back again to weeds.

As Chief of the Patent Office he is discharging a public trust of high importance, which few others in the land are so well qualified to fill. We trust he will allow nothing save affairs of the gravest importance to interfere with his existing official relations. The country has a right to expect that he will not leave her in the lurch—that he will not resign, at any rate, until he makes sure of seeing the station he leaves occupied by an equally competent successor. We will ask nothing more than this, for we feel satisfied, that under such circumstances, his stay in office would be considerably prolonged.

Renton's Process for Manufacturing Iron Direct from the Ore.

Professor Wilson, who was one of the Commissioners appointed by the British Government to the New York Exhibition, and to report to his Government on the iron manufacture of our country, lately read a paper on this subject before the London Society of Arts, in which he spoke flatteringly of Renton's process for making iron direct from the ore, which was illustrated on page 169, Vol. 9, SCIENTIFIC AMERICAN. It was also stated that the process was about to be introduced into England. Respecting it, David Mushet—the son of the well known discoverer of the famous black band iron ore, takes occasion to make some remarks in the London *Mechanics' Magazine* of the 7th ult., to the effect that the same thing had been attempted before in England, and is well known. He however does not seem to know the improvements claimed by Mr. Renton, who makes no pretence to be the first who has made iron direct from the ore. He claims however, to have invented a furnace that does this, with a considerable saving, in the manufacture of iron, and Mr. Mushet confesses that all such attempts made in England had proved abortive. A hundred previous unsuccessful attempts to accomplish a useful object instead of detracting from the merit of the successful inventor, confers upon him the greater honor, however small the improvement may be which led to the successful result.

Loughridge's Brake.

The railroad brake of Wm. Loughridge, of Weverton, Md., noticed on page 250, SCIENTIFIC AMERICAN, Vol. 10, and for which a patent was granted on the 11th ult., has been applied to car No. 36, on the Third Avenue railroad, this city, where it can be seen in operation. Mr. Loughridge can be seen at the Howard Hotel, Broadway, and he will give all the necessary information desired, to any party, respecting it,

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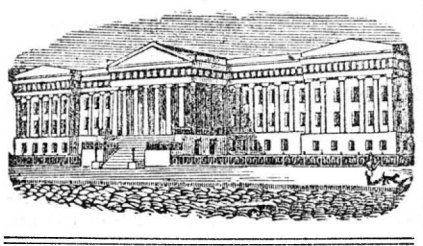

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING APRIL 25, 1855.

PLATFORMS OF GRAIN HARVESTERS—Jearum Atkins, of Chicago, Ill. : I claim the bars or ribs, or their equivalents, on the platform of reapers in rear of the knife, in combination with a rake actuated by hand or by machinery and moving above the platform ; the ribs being either straight or curved, but parallel or nearly so to the travel of the teeth of the rake.

SPRING CONNECTING RODS FOR WASHING MACHINES—J W. Corey, of Crawfordsville, Ind. : I claim the coiled spring, C, combined with the eccentric, E, or its equivalent for the purposes specified.

STOVES, &c.—Jonathan Johnson & Joel E. Crane, of Lowell, Mass. : We do not claim the central air-heating passage, L, separately, for that has been previously used.

But we claim the employment of the valves, H, in combination with the bridge, J, arranged in the manner described and for the purpose specified.

MANUFACTURE OF SLATE PENCILS—Norman C. Harris, of Poultney, Vt. : I claim cutting the pencils, completely formed from slabs of slate, by means of a cutter or series of cutters, grooved so as to half form the pencils on one side of each slab, and then reversing the slab and forming the other halves of the pencils, substantially as set forth.

IMPLEMENT FOR SHEARING SHEEP—Palmer Lancaster, of Barr Oak, Mich. : I claim the construction of the implement, as shown and described, viz , having a series of cutters, f, work over a series of stationary cutters, h, the cutters, f, having a vibratory movement given them by means of the reciprocating frame, B, rack, D D', pinions, F F', with pawls, d d, attached to them and spur wheel, G, pinion, H, and crank, pulley, I, the pinions, F F', being placed loosely on the shaft, E, of the spur wheel, G. The above parts being arranged as shown and operating in the manner and for the purpose set forth.

[This novel piece of mechanism for sheep shearing is described on another page.]

FEEDING PAPER TO PRINTING PRESSES—Isaac B. Livingston & Miles Waterhouse, of Barnet, Vt. : We claim the use of the angular guide ways, in combination with the cross bar, or its equivalent.

We claim the use of crank or its equivalent working between the arms of levers as described, in combination with levers and cross bar, as described.

We claim the raising table in combination with the cams, shafting, and gearing, for moving said table, or their equivalents, as described.

We do not claim the raising of paper by atmospheric pressure, as that has been before used for that purpose.

We claim the combination of machinery, as described, for carrying forward the paper, a sheet at a time, and feeding it to printing presses.

LOOMS—J. G. Melville and Wm. Brayshaw, of Wetheredville, Md. : We are fully aware that a forked bar through a series of cog gearing and ratchets has been used for operating the shuttle boxes of looms. This we do not claim.

We claim, in combination with a vibrating bar or lever, one or more segments, whose perimeters are partially provided with cog and partially with ratchet teeth, for the purpose of operating the shuttle boxes of figuring looms through the intervention of a straight rack, so that we dispense with several of the pieces heretofore used, and thus cheapen and simplify the mechanism, as set forth, while the same ends are attained as by the more complicated machinery at present used for this purpose.

PIANOFORTE ACTION—William Munroe, of Boston, Mass.: I claim, first, the combination of the escapement jack and check co-operating to sustain the hammer in position to repeat and to prevent its rebound, substantially in the manner set forth.

Second, the inclined escapement, as applied to pianoforte and other similar actions, substantially in the manner set forth.

Third, the application of the toggle joint to pianoforte and other actions, in combination with the jack and hammer for the purpose set forth.

CARRIAGE SPRINGS—Thos. Murgatroyd, Jr., of Smithville, Canada West. Patented in Canada, July 21, 1854: I claim the employment or use of the springs, A A', attached to the arms, a, of the axles, B B, by links, b d, the links, b, being above, and the links, d, below the arms of the axle, the two springs, A A,' being connected by stays or rods, C ; the springs being also braced to prevent a forward and backward motion of the same, and the axles, B, being supported or braced by the rod or brace, D, as shown and described.

[This improvement in springs is briefly described on another page.]

COMBINED TABLE AND WRITING DESK—Lucius Page, of Cavendish, Vt. : I claim the combination of the desk recess, B, and the hinged box or case, C, with the table, so as to operate therewith, as specified.

I also claim the combination of a reversible paper rack with the hinged box or case, provided with two sets of doors on its opposite sides, as specified and adapted to a table so as to fold into and out of the same, in the manner described.

MACHINES FOR POLISHING STONE—L. S. Robbins, of New York City : I do not claim the use of a revolving self-adjusting polisher or grinder, or the manipulating apparatus separately considered.

But I claim the manipulating apparatus, consisting of the shaft, A, crane, C, radial arm, G, and wheel, E, as described, in combination with the revolving and self-adjusting rubber or polisher, constructed and arranged substantially in the manner set forth and for the purposes specified.

MACHINES FOR PLANING METAL—J. H. Thompson, of Paterson, N. J. : I claim, first, planing the sides of nuts of prismatic bars, by means of a series of cutters, c, attached to the periphery of a disk, C, of scroll form, so that each cutter will project a trifle further from the center or shaft, B, of said disk, and thereby allow the whole number of cutters to pass over and plane the whole surface of each side of the nuts or bar at one revolution of the disk, as shown and described.

Second, I claim the employment or use of the disk, C, with cutters, c, attached to its periphery, as shown, in combination with the intermittingly rotating mandrel, E, for the purpose as set forth.

Third, I claim rotating the mandrel, E, intermittingly by means of the lever, H, projection, j, attached to the disk, C, and the ratchet, E, and drum, G, operated by a weight, h, or its equivalent.

Fourth, I claim operating the clutch, U, by means of the radial arms, P, lever, V, and spring, S, attached to the sliding bar, R, the arms, P, being acted upon by the arm, W, on the shaft, B, as shown and described.

[This is a very valuable invention, which will be illustrated in our columns at some future time. Foreign patents are being secured upon it, which precludes the propriety of publishing a description of it at this time.]

ATTACHING WHEELS TO HARVESTERS, &c.—Abner Whiteley, of Springfield, Ohio : I claim the simultaneous attachment of the wheel, a, to or on the axle, b, and the axle, b, to the plate, f, by means of the bolt, g, in combination respectively with the stud, e, and washer, c, as described.

HARVESTERS—Abner Whiteley, of Springfield, Ohio : I am aware that grain has been reeled down, cut, conveyed over the platform, and discharged in a continuously straight line, parallel to the line of draft ; and I am aware that curved and bent platforms, and platforms oblique not only to the line of draft, but also to the reel and finger bar, have been used to discharge the grain behind the master wheel, or otherwise remove it from the standing grain.

But I claim, first, the above described arrangement of reel, cutting apparatus and platform all oblique to the line of draft or reel acting obliquely over any platform, or any other substantially equivalent device, whereby the grain is at once reeled down, cut, and conveyed over the platform in a continuously straight line, and at the same time delivered at a sufficient distance from the standing grain to permit the passage of the horses between it and the cut grain, when cutting the next swath

Second, I claim also so placing the reel, as described, that the reel rods will strike the grain, when they enter it, outside of the line passing through the point of the divider and parallel to the line of draft.

Third, I claim placing the grain wheel in a plane intersecting the line of draft, so that it may relieve or counteract the side draft, as set forth.

Fourth, I claim placing the axis of the grain wheel (when so located in a plane intersecting the line of drart) in a plane which passes vertically through the center of the master wheel, so that it may, at the same time, give ease in turning at the corners, as set forth.

Fifth, I claim the combination of the metal groove, U, and the sickle, h, the length of which is that of the cut of the machine, for the purpose of enabling me to place the grain wheel opposite the end of the sickle, and at the same time with its point of bearing on the ground, within the space cleared by the divider, as set forth.

Sixth, I claim the longer and divergent finger next to the divider substantially as and for the purposes set forth and described.

Seventh, I claim the sickle tooth, d, serrated on the smooth side and beveled on the other, substantially as and for the purposes set forth and described.

Eighth, I claim the alternate spaces in the rear of the sickle bar and teeth, combined with the shoulders on the fingers, against which the sickle bar works, for the purpose of alternating the bearings as and for the purposes set forth and described.

Ninth, I claim the cone, t, on the knee lever, o, substantially as described and for the purposes set forth.

Tenth, disclaiming the broad device of guides to return the rake in a different path from that in which it advanced.

I claim the combination of the rake, K, swinging from one arm of the reel, with the spring plate guides, R R, by which, when the rake has delivered the grain at the end of the platform it is prevented from swinging back and coming in contact with the falling grain, as described.

FORGE HAMMERS—John Comstock, of New London, Ct. (assignor to Peter Naylor, of New York City) : I do not claim a tightening pulley in itself, as this is well known, but I am not aware that a tightening pulley and brake have ever before been used, as set forth, by which the speed of the blow is regulated by the tightness of the belt, or the same is stopped entirely by the brake, while the motive power still propels the belt.

And I am well aware that a hammer has been so set as to be drawn down to give the blow, and then raised again by a spring, therefore I do not claim the same in itself.

And I am also well aware that different sized cams have been used for raising a forging hammer, therefore I do not claim the different lengths of cams in themselves ; but I am not aware that two or more cams of varying lengths have ever before been combined with a lever and adjustable screw shackle to pull down a hammer and give the blow, whereby I am enabled to use a definite amount of motion given by a cam to forge articles of various sizes, the screw shackles giving the facility for regulating the point to which the hammer is pulled.

First, I claim the method described and shown, for regulating the speed of the blows given by a forging hammer by the use of a tightening pulley combined with the brake applied to the fly wheel, substantially as specified.

Second, I claim the method described and shown, of regulating the amount which a hammer is drawn down to give the blow by rotating cams, by combining with said cams and hammer the adjustable screw shackle, 20, and lever, u, the whole constructed and combined, substantially as specified.

MACHINES FOR DRESSING LAWNS—R. L. Hawes, of Worcester, Mass. (assignor to Robert Rennie, of Lodi, N. J.) : I do not claim finishing lawns by cousing the selvedges to advance alternately as the goods pass through the dressing machine, as this is done upon the machine described in Newton's London Journal, co-joined series, Vol. 32, page 77.

I claim the stationary heating cylinder, in combination with the hoops, D, having an alternate intermittent motion, in the manner described and for the purpose set forth.

I claim the sectional roll, I, in combination with the rollers, k k', operating substantially as described, for the purpose of drawing the selvedges alternately from the machine, as set forth.

RE-ISSUE

HINGES OF ROLLING IRON SHUTTERS—A. L. Johnson, of Baltimore, Md. Originally patented June 25, 1850 : I claim constructing shutters of slats of sheet metal with joints formed by curving the edges of the slats, as described, and securing them in place, in the manner specified, viz., either by turning down projections or attachments to the ends of the slats, and thus forming an even edge to the shutters, or by means of wires inserted in the curves and bent and headed at the ends, the shutters sliding up and down in the grooves of the window frame in which it is placed, the whole being constructed substantially as specified.

[What is the matter at the Patent Office, now? What means this short list of issues for last week? The days are long enough at this season, and surely there is examining force sufficient to have turned out a larger batch of patents, in an entire week, than is given above. Don't let the spring fever get hold of you to relax your energies, Messrs. Examiners, but keep your tables as clear as they were on the first of January last, and you shall have the universal thanks of the inventors throughout the land.

On Writing Inks.

PAPER RECENTLY READ IN THE SOCIETY OF ARTS, Edinburgh, by Dr. J. Stark.—The author stated that in 1842 he commenced a series of experiments on writing inks, and up to this date had manufactured 229 different inks, and tested the durability of writings made with these on all kinds of paper. As the result of his experiments, he showed that the browning and fading of inks resulted from many causes, but in ordinary inks chiefly from the iron becoming peroxygenated and separating as a heavy precipitate. Many inks, therefore, when fresh made, yielded durable writings ; but when the ink became old, the tannogallate of iron separated, and the durability of the ink was destroyed. From a numerous set of experiments, the author showed that no salt of iron and no preparation of iron equalled the common sulphate of iron—that is, the commercial copperas—for the purpose of ink making ; and that even the addition of any persalt, such as the nitrate or chloride of iron, though it improved the present color of the ink, deteriorated its durability. The author failed to procure a persistent black ink from manganese, or other metal or metallic salt. The author exhibited a series of eighteen inks which had either been made with metallic iron or with which metallic iron had been immersed, and directed attention to the fact that though the depth and body of color seemed to be deepened, yet in every case the durability of writings made with such inks was so impaired that they became brown and faded in a few months. The most permanent ordinary inks were shown to be composed of the best blue gall nuts with copperas and gum, and the proportions found on experiment to yield the most persistent black were six parts of best blue galls to four parts of copperas. Writings made with such an ink stood exposure to sun and air for twelve months without exhibiting any change of color ; while those made with inks of every other proportion or composition had more or less of their color discharged when similarly tested. This ink, therefore, if kept from molding and from depositing its tannogallate of iron, would afford writings perfectly durable. It was shown that no gall and logwood ink was equal to the pure gall ink in so far as durability in the writings was concerned. All such inks lost their color and faded sooner than pure gall inks, and several inks were exhibited which, though durable before the addition of logwood, faded rapidly after logwood was added to them. Sugar was shown to have an especially hurtful action on the durability of inks containing logwood—indeed, on all inks. Many other plain inks were exhibited, and their properties described—as gallo-sumach ink, myrobalans ink, Range's ink—inks in which the tannogallate of iron was kept in solution by nitric, muriatic, sulphuric, and other acids, or by oxalate of potash, chloride of lime, &c. The myrobalans ink was recommended as an ink of some promise for durability, and as the cheapest ink it was possible to manufacture. All ordinary inks however, were shown to have certain drawbacks, and the author endeavored to ascertain by experiment whether other dark substances could be added to inks to impart greater durability to writings made with them, and at the same time prevent those chemical changes which were the cause of ordinary inks fading. After experimenting with various substances, and among others, with Prussian blue and indigo dissolved in various ways, he found the sulphate of indigo to fulfill all the required conditions, and, when added in the proper proportion to a tannogallate ink, it yielded an ink which is agreeable to write with, which flows freely from the pen, and does not clog it ; which never molds, which, when it dries on the paper, becomes of an intense pure black, and which does not fade or change its color, however long kept. The author pointed out the proper proportions for securing these properties, and showed that the smallest quantity of the sulphate of indigo which could be used for this purpose was eight ounces for every gallon of ink. The author stated that the ink he preferred for his own use was composed of twelve ounces of gall, eight ounces of sulphate of indigo, eight ounces of copperas, a few cloves, and four or six ounces of gum arabic, for a gallon of ink. It was shown that immersing iron wire or filings in these inks destroyed their durability as much as similar treatment destroyed ordinary inks. He therefore recommended that all legal deeds or documents should be written with quill pens, as the contact of steel invariably destroys more or less the durability of every ink. The author concluded his paper with a few remarks on copying inks and indelible inks, showing that a good copying ink has yet to be sought for, and that indelible inks, which will resist the pencillings and washings of the chemist and the forger, need never be looked for.—[London Artizan.

Our Inventors.

The *Day Book* has an article devoted to our Patent Laws. It says :—

"The Courts have at last learned to view patentees, not as greedy monopolists, but as public benefactors. The current of decisions is now strongly turned to protect, as far as possible, their rights, and everything which can be, is interpreted in their favor. But more is wanting than this. We admit that this is a change that augurs well, for the time was when everything was taken most strongly against the patentee by the Judges. They have learned better the value of the labors of the discoverer to the public, and decide accordingly. It is not now the prejudices of the Judges that are to be reformed."

[There is much solid truth in what our cotemporary says. One of the greatest boons, we think, that could now be conferred on patentees, would be a reform respecting the great expenses attending the defence of patents in the U. S. Courts. Some inventors have said to us that it was well the law expenses were so great, for that was the very reason why patentees dreaded to enter into law suits, and why there existed a dread of infringing patents by others. We confess this is a very good argument in favor of high legal expenses, but we hold to the doctrine that the means of obtaining the protection of law should always be simple and cheap.

Hopkins' Patent Self-Operating Car Coupling.

On Friday of last week we were present at an exhibition of the operation of this improvement, on the premises of the N. Y. and E. Railroad, Jersey City, opposite New York. A train of some four or five passenger cars on which the improvement is used, was put in requisition, the various cars being repeatedly uncoupled, and all again simultaneously connected by the mere backing up of the locomotive. The improvement is one of a very simple nature, consisting in the placing of a headed spring (costing five cents) within the common draw heads. By another improvement in the manufacture, these self-coupling draw heads are produced at a less cost than the present heads. The common heads may also be altered to receive the improvement at a trifling expense. This invention is now being adopted on all the cars of the Erie Railroad, and we presume will come into general use, since no alteration or depreciation in existing fixtures is required. When we consider the large loss of life and maiming of limb which must unavoidably occur under the present dangerous method of coupling cars by stationing a man between each, the introduction of such improvements as the one we have described, becomes a matter of commendable humanity, to say nothing of economics. Engravings of this invention will be published in a few weeks.

Frost and Iron Rails.

During the past winter, it was found on the New York Central Railroad that the lightest rails were far less injured by the severe frost than the heavy ones. There were three kinds in use upon which strict observation was maintained—those weighing 56 lbs. to the yard, those weighing 65 lbs., and those weighing 75 lbs. to the yard. The heaviest rails were worn the worst, the next heaviest less, and the lightest the least of all ; and the heaviest were injured more in proportion than either of the other. The 56 lb. rail stood the frost and percussion of the passing trains, as compared with the 65 lb. one, better than the latter did as compared with the 75 lb. rail. It was also observed that wheels and rails were more apt to break the day after intense cold, than on that day itself.

The Street Sweeping Machines.

Contrary to the statements of Street-Commissioner Ebling—which we noticed last week—we have been informed that the sweeping machines have done their work better and cheaper than ever it has been done by hand. The streets on which these machines operated, never were kept so clean before. The whole fault of the machines consists in this, "they have no vote."

Arsenic Smokers.

In North China, the people smoke arsenic mixed in small quantities with their tobacco. These people are said to be strong, healthy, and ruddy. Dr. Londe, of Paris, asserts that its use in this manner—smoking—is a a remedy for tubercular consumption.

Curious Phenomenon.

The Geneva (N. Y.) *Gazette* states, that during the 18th and 19th inst., the waters of Seneca lake rose and fell from five inches to two feet, perpendicularly, in spaces of time varying from ten minutes to half an hour, continuously throughout that period.

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TO CORRESPONDENTS.

J. C. D., of Ohio—If you steep your shingles in a solution of alum and the sulphate of copper for four or five hours, then dry them well, they will be rendered almost fire proof: one pound of each will do for sixty gallons of water—sink the shingles in bunches, with stones, in a cask containing the liquor.

J. B,, of Tenn.—Why did you not read the receipt for making the blacking correctly; it does not say "india rubber oil;" it tells how the india rubber is dissolved in oil.—You can obtain the machinery for making tin boxes at the tinsmiths' tool stores; we are not personally acquainted with making printers' ink. Leave out the india rubber, and oil, and you will make a good common blacking, by the receipt alluded to.

C. E. G., of Ga.—We fail to discover the slightest novelty in your seed planter.

E. F. O., of Tenn.—You are mistaken in supposing that we ever act in the capacity of agents for *disposing* of patents,—we secure patents for others, but never take a pecuniary interest in any inventions whatever. Patentees make a great deal of money from having their inventions illustrated in our columns.

A. H., of Mass.—We know of no reliable parties in this city who make it a sole business to deal in patents; neither could we recommend you to any party who would be likely to dispose of your "rights," taking as payment a percentage on the amount of sales.

J. W. M., of Wis.—We never saw the engine, to which you refer, in operation: we have no faith it.

G. W. H., of N. Y.—We have received your letter with the two copies produced by the Polygraph; we would like to see the instrument.

G. H., of Miss.—We have received yours; there is much in your article for which we have no type; your views are profound and logical.

A. S, of New York—Laplace was born in 1749 at Beaumont, in Auge, France; he died March 6, 1837; we do not know the date of the publication of his "System of the World."

F. T. L., of Mass.—It is possible that upon application to a Member of Congress from your District, that he may be able to procure for you the Patent Office Reports for the years you name: we know of no other manner in which you will stand any chance to get them. Bourne's work on the Steam Engine is the best work we could recommend you. We have not been able to find the patent to which you refer.

F. C., of N. H.—Any peculiar form of lattice-work, be it ever so beautiful, cannot be patented.

G. P. H., of Ohio—If you have filed a caveat or taken other steps to secure a patent, any assignment you may make will hold valid. An inventor cannot sell an idea and gain a title to it which the assignee can hold, until some steps have been taken to secure it by patent.

R. T. S., of Ga.—It is possible that you have a new and patentable combination of mechanism for mortising blind slats, but the operating of cutters in the manner you suggest is not new. If you could send us a model or a good drawing, we could determine in regard to your case much better than we are able from the description you give.

R. A., of Miss.—Your letter of the 13th came duly to hand, enclosing 25 cents to be invested in gutta percha. The order we dispatched, with the money received to a large importer and dealer in the article, who has promised that your request shall be complied with.

A. B. C., of N. H.—The conversion of reciprocating into rotary motion, by means of a double rack and a toothed wheel, is old, but there appears to be some novelty in your manner of throwing the opposite racks in and out of gear when the motion of the racks is reversed. When you are ready to proceed, advise us, and send on the government fee to this office.

W. P. G., of Mo.—When india rubber is made soft it can be molded into any form by metallic molds of the pattern you desire.

J. H. S., of Ky.—We understand that a strong solution of isinglass is emp loyed for joining the edges of belting.

J. B.W., of Ohio—Apply to G.W. Beardslee, of Albany, N. Y., for information respecting the manufacture of paper pulp from wood.

J. T., of N. Y.—Be sure and write in plain hand. Be brief and clear. We will correct your composition, but not your statements. Never write upon a subject with which you are not perfectly acquainted. Don't say "is this so." Be sure you state nothing but positive facts. Remember, condense your words.

A. K. S., of Pa.—The nitrate of silver in solution, written upon lined or cotton which has been moistened with sal soda, makes a good indelible ink.

T. B. Russell, of Salem, Mass.—Wishes to find an oil or burning fluid anti-explosive, and not affected by cold weather, which will continue to burn twelve hours, with flame reduced to ¼ inch hight, or less.

P. W., and O. M., of N. J.—We have no choice in regard to your cut-offs. We consider them both equally good.

W. W. C., of Miss.—Address Geo. Page, Washington, D. C., in regard to saw mills.

B. A., of N. C.—We know of no sawing machine which combines the upright and circular saw as you describe. You could obtain the same speed with either the teeth or the band. We should prefer the band.

C. J. C., of Ga.—Your window sash catch is a good one; but we think it very doubtful whether the same is patentable, owing to the great number of inventions belonging to this class already existing.

S. J., of Me—We know of no knitting machines that will make the stocking entire and form it at the same time. A machine which will successfully accomplish that purpose would be very valuable.

G. W. W., of Mich.—Your car ventilator strikes us as possessing patentable features.

J. H. K, of Va.—If we understand your present contemplated improvement, you propose to compress air by the bellows, and then use a portion of the air so compressed to drive the bellows, using the rest to supply the blast.—This beats perpetual motion all to nothing, and would be like attempting to pump up water by a pump driven by a water wheel, only using for the driving power a portion of the water pumped up.

——of North Ridgeville—Your war steamers or ships' harpoon would, in our opinion, be far inferior to a broadside. The fact that the raising of steam by injecting spray upon heated metallic surfaces, has never come into general use, would seem to show that it has never been very successful. It may be that the apparatus heretofore used has proved defective. We think yours appears to be a very good arrangement for the purpose. Your letter was not signed.

E B. H.—We think it probable that a limited claim to your arrangement of the perforated water course might be allowed. $1 received, but we cannot send the paper unless you give your address.

S. M. N., of Mass.—We are in receipt from you of $10, and have ordered the copies from the Patent Office, which will be forwarded as soon as received.

J. G. McM, & Co., of N. Y.—For the information you give us in answer to our inquiries you will please to accept our thanks.

Money received at the SCIENTIFIC AMERICAN on account of Patent Office business for the week ending Saturday, April 28:—

R. F. C., of Ala., $30; E. R. N., of Pa., $25; A. S., of Mich., $30; E. A., of Ill., $10; W. H. H, of Mass., $25; J. C. D., of N. J., $100; M. C. L, of——$7; J. A., of N. J., $10; J. & H., of N. H, $30; L. S. E., of N. Y., $25; C. & G., of Ct., $25; L. S., of N. Y., $10; S. M., of N. H., $25; H. H. T., of Mass., $25: N. W., of Ala., $25; J. Mc M., of Ky., $55; A. J. B., of Mich., $30; W. D., Jr., of Pa., $55; G. L., of N. Y., $30; W. D. W., of Ind., $25; W. D., of N. Y., $25; L. B. B., of Ct., $25; C. F. B., of R. I., $550; J. S., of O., $35; R. R., of Pa., $25; G. S., of Ala., $38; J. S., of Pa., $30; N. W. R, of N. Y., $25; H. W., of N. J., $30; M. & H., of N. Y., $30; P. G., of N. Y., $20; D. H. G., of N. H., $15; L. D. P., of N. Y., $30: A. H. R, of Pa., $30; J. W. M., of N. H., $30; T. M., of N. Y., $25; M. C., of N. Y., $10; G. T., of N. Y., $25; H. M. C., of Ct., $40; G. H., of N. Y., $35.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 28:—

O. T. E., of Pa.; C. & G., of Ct.; S. M., of N. H.; H. H. T., of Mass.; L. S. E., of N. Y.; L. S., of N. Y.; U. W, of Ala.; T. E., of Pa.; T. M., of N. Y.; J. E. F. L., of Ct.; W. H. H., of Ct.; G. L., of N. Y.; R. R., of Pa.; W. D. W., of Ind.; L. B. B., of Ct.; J. C. R., of N. Y.; E. D. W., of Pa.; W. D., of N. Y.; J. S., of O.; C. F. B., of Ct. (2 cases); M. C., of N. Y.; G. T., of N. Y.; H. M. C., of Ct.; G. H., of N. Y.

Important Items.

PATENT LAWS, AND GUIDE TO INVENTORS—Congress having adjourned without enacting any new laws pertaining to applications for patents, we have issued a new edition of the old laws, which may be had at our counter or sent by mail. This pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

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NORCROSS ROTARY PLANING MACHINE—The Supreme Court of the U.S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringemet of the Woodworth Patent.

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Science and Art.

History of Reaping Machines.—No. 30.

On page 254, Sci. Am., Vol. 10, will be found the claim of the re-issued patent of Palmer & Williams—original date, July, 1851—whose reaper was illustrated on page 248. They informed us of the original specification being defective. In the list of claims last week (date, 18th April,) are four for improvements granted to E. B. Forbush, of Buffalo, N. Y. They relate to strengthening the platform and the formation of a second angle in the brace bar of the guard fingers. On the same day a patent was granted to Philo Sylla, of Elgin, Ill., for a method of hanging the sickle stock. Also two claims to Jarvis Case, of Springfield, Ohio.

In the list of claims this week, is one to Jearum Atkins, of Chicago, Ill., inventor of the automatic raker. There are two patents granted to Abner Whiteley, of Springfield, Ohio,—one embracing no less than ten claims, thus showing that the great number of patents which had been previously issued, did not cover all things.

This closes the list of patents granted for harvesting machines (reapers and mowers) up to the present day.

The fifty-nine figures which we have presented, illustrative of different machines, proclaim one fact, viz., that the most simple is the most effective, and most esteemed reaper. Our farmers want simple, strong, (but not clumsy,) and easily repaired implements; no others will answer.

The earliest power reaping machines were rotary in their action. So far as we can learn there is not one rotary reaper now in use in our country. Do the reciprocating cutting reapers, therefore, embrace a superior cutting action? We do not think they are more simple; nor can we see that they operate upon a more correct cutting principle, for the mowing cut by the hand scythe describes the segment of a circle. The fact, however, is patent, that reciprocating reapers alone have been successful.

The reel and the reciprocating cutter were embraced in Ogle's English machine, of 1822, [page 64 Sci. Am.,] so that these two features of reaping machines are not of recent date.

It would appear that the application of guard fingers to the cutters was the great improvement which first made such machines successful in our country. Mr. Manning, of Plainfield, N. J., was the first who applied guard fingers to his cutters, and made the latter spear-shaped. His guard fingers, however, were only single. We never hear his name mentioned in connection with reapers, and yet, if any single man deserves credit for improvements in such machines, we think he does. We trust we have rescued, in this history of reapers, his name from oblivion.

The first American patent for a reaper was granted to R. French and J. T. Hawkins, of New Jersey, in 1803: it was a rotary reaper; Obed Hussey, of Baltimore, was the first who added a second set of guard fingers to the cutter—a great improvement. His machines are still held to be excellent, and every successful one is indebted to him for what he added to such machines.

Of the great number of machines which we have illustrated, many devices, apart from the main cutting parts, have been patented; these being required to render them more perfect in action. But it cannot be denied that much ado has been made by some manufacturers of reapers about some exceedingly insignificant devices. Patents have been granted for reapers embracing cutting, thrashing, and winnowing, at one continuous operation on the field. Such machines we never expect to see in successful operation. They are complex, and besides, the grain, when cut, is not generally in a fit state for thrashing and screening. It wants to be cut and left some days to *harden* the *gum*.

It has also been attempted to construct a reaper that would rake, bind, and deliver the grain in bunches, to be merely set up in stooks. If such a machine could be made very simple, it would be a grand thing for farmers; but a great number of different movements require complex gearing; we therefore think that such a machine will not be easily produced.

Every reaping machine should be convertible into a mower. Few farmers can afford to keep two different machines. The gearing should be adapted to run the knife faster for mowing grass than cutting grain, because the grass is softer and finer, and will be cut easier with a quick than a slow motion. The knives should be hung and set, so as they can be easily sharpened without shifting them. The cutters should always be kept in good order; sharp knives are not easily fouled; they also cut cleaner, and are much easier on the team than dull knives. Fifty questions might be answered respecting the successful action of reaping machines, by four words, "keep your cutters sharp."

It need not excite any wonder, if some errors have been committed in presenting this history of reaping machines. We have endeavored to have everything strictly correct, but owing to the great number of names and dates presented, some errors, but not many, have been made. Our object has been to present a *true* history: we have cheerfully corrected every error that has been pointed out to us. Our thanks are due to quite a number of patentees who furnished us with their patents, to illustrate and point out their particular improvements. A number sent us advertising cuts and hand-bill descriptions of their machines, which we could not publish.

Foreign Reapers—For information and illustration of foreign reaping machines, except Ogle's we are indebted to Bennet Woodcroft, Esq., of the London Patent Office. The Government Report on this subject, of which he is the author, does him great credit. We, in the name of American inventors and farmers, present him with their thanks and respectful acknowledgment, for his useful labors in this branch of mechanical science.

We do not think that we are at the end of improvements on Reapers yet; we intend to give close attention to such machines, to add what may have been omitted, and publish from time to time, everything we learn that is new and useful respecting them.

Erratum—The page of the claim of A. Whiteley, of Ohio, in last week's Sci. Am., is given 266, it should be 246.

Deodorizing Putrid Matter for Manure.

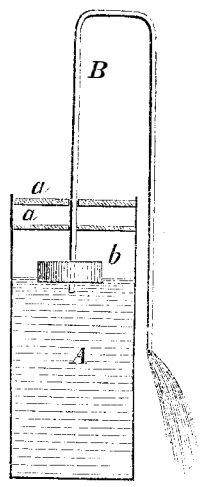
Among the various substances proposed to disinfect excrements, and at the same time to fix and retain their valuable constituents, some, as sulphuric and muriatic acids, expel sulphuretted hydrogen, and are therefore objectionable; others, as the metallic salts, may themselves be injurious to plants. Boussingault proposed chloride of magnesium, which would form the difficultly soluble ammonia phosphate of magnesia. Calloud proposes the mother-waters of salines, containing salts of lime and magnesia, together with charcoal. While the former would form phosphates of slow solubility, the coal absorbs the noxious gases, and by its porosity also oxydizes sulphuret of ammonium into sulphate of ammonia.

To deodorize human excrements, the best material is probably the pyrolignate of iron, the free acid of which has been previously neutralized by a base (ashes, lime, &c.)

To prevent the escape of disagreeable and perhaps noxious gases from decomposing animal matter, and to convert it into good manure, E. Brown recommends (Lond. Journ. Arts) pouring into a privy a dilute solution of sulphate, muriate, or pyrolignate of iron, or muriate of manganese (from the manufacture of bleaching salt,) stirring up, then covering it with a good absorbent (75 pts. wood-ash, and 25 pts. saw-dust, bone-powder, &c.,) and closing the building for 10 minutes.—Thus freed from odor, it may be transported to a poudrette building, where it is mixed with 15-20 per cent. of a drying powder, such as dry muck, dried, and packed.

Blood may be rendered inodorous and incapable of putrefaction by adding to it a solution of chloride of iron or of manganese, which unites with and coagulates the albuminous matter, and then drying it alone, or mixing with absorbents and drying it.

Beautiful Philosophical Experiment.



The great Ctesibins, of ancient fame, invented those wonderful Clepsydræ, or water-clocks, and so delighted the Romans, that he was elevated to the highest posts of honor which a monarch could bestow. Yet those highly-wrought pieces of mechanism, costing millions of dollars, did not produce as uniform movements as a simple tube and vessel of water may be made to do. By combining the syphon and Barker's Mill, or the re-active force of water, we have the result of which I speak.

Take a tall narrow vessel, A, and fit two pieces of wood, *a a*, across the inside. Bore holes through the pieces, so that they will be in the center of the vessel, and one above the other. Bend a small tube of any material which bends readily into a syphon, B, keeping the legs straight, with two right angles at the top. Next turn the end of the longest outward, so that the bent part will correspond with the line of a circle, the shortest leg being the center. When the syphon is properly placed, the bent end is horizontal. Put the short leg loosely down through the holes in the pieces, after which push it tightly half an inch through a cork, *b*, large enough to float and sustain the syphon. The long leg will now be on the outside of the vessel.

Pour clean water into the vessel until the cork nearly touches the cross piece. Charge the syphon by suction and it will commence revolving rapidly around the vessel, continuing as long as any water remains, provided the inner leg is long enough. The movement is surprisingly accurate. This experiment I believe is an original one.

J. H. Jones.

Rockton, Ill.

How to turn a White Dahlia Blue.

I have been told, but never have tried the experiment, by a celebrated cultivator of dahlias in Belgium, that he will be able, in the course of a year or two, to produce a blue one, by keeping constantly watered the root of a white one with a solution of sulphate of iron. The sulphate of iron turns hydrangeas blue, and why not other white flowers as well? Of course the solution must be very weak when used.—[Gardeners' Chronicle.

Sewing Gloves by Machinery.

Gloversville, Fulton Co., N. Y., is the seat of the American glove and leather mitten manufacture. Hitherto these gloves have all been given out cut, in parcels, and have been sewn in the houses by females, for so much per dozen. This system is about to be changed, we understand, by the introduction of sewing machines, and the adoption of the factory system. It would afford us more pleasure to hear of the sewing machines being substituted for hand labor with the simple domestic system of piece work maintained.

Rapid Churning.

The Vermont *State Banner*, Bennington, states that the churn of E. Gore, of that place, churned butter from the cream in 35 seconds.

Another Weapon of War.

The *Bee* says that a gentleman in Ipswich has invented a machine which is capable of throwing, with great force, one hundred cannon balls in a minute; and this without the use of powder or any other explosive agent. Centrifugal motion is the principle by which the power is obtained, and the inventor is confident that the instrument would be very efficacious in repelling assaults, defending forts, and in throwing red hot shot at a vessel or into a town.—[Worcester Telegraph.

[The above motion must be very effective for shooting round the corners of streets; but it is the first time we have heard centrifugal motion called a principle. Has this shooting machine anything to do with the centrifugal force engine which was to propel steamships across the Atlantic for less than nothing, and which ended in nothing, but cost many persons in this city, and elsewhere, more than they like to acknowledge?

Literary Notices.

The National Magazine—The May number of this Magazine contains an illustrated article from Irving's last volume, and quite a host of other articles. Published by Carlton & Phillips, 200 Mulberry street, N. Y.

Old Blackwood—The last number (April) of famous old "Ebony," contains the "Story of the Campaign," continued, which is the most correct account of the war in the Crimea; "Published Notes on Canada, and North West America," are well written; "Psycological Inquiries" is another article, which we recommend to the attention of phrenologists. Published by Leonard Scott & Co., 54 Gold street, New York.

Putnam's Monthly—The May number of this able magazine does credit to its new publishers, Messrs. Dix & Edwards, No. 10 Park Place. The first article is on Geology, which contains some curious speculations. It contains 17 original articles on other subjects, with the usual editorial criticism.

Dickens' Household Words—The May number of this journal, also published by Messrs. Dix & Edwards, likewise does them honor. It is a re-publication of perhaps the ablest European periodical of light literature. Its articles are always rich and racy.

Nature, Origin and Cure of Tubercular or Scrofulous Disease—This is a work by John Fondey, M. D., Professor in the Ecclectic Medical College, of Pennsylvania, it also includes a manual for the application of electro-magnetism. Published by W. C. & J. Neff, 3½ South Seventh street, Philadelphia.

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